

[Homepage](#)[Latest News](#)[Search](#)[Languages](#)[Contact Us](#)[About Us](#)

Sunday, November 22, 2009 13:59 GMT

IPS Direct to Your
Inbox!your email

- Global Affairs
- Africa
- Asia-Pacific
 - Afghanistan
 - Iran
- Caribbean
 - Haiti
- Europe
 - Union in Diversity
- Latin America
- Mideast & Mediterranean
 - Iraq
 - Israel/Palestine
- North America
 - Neo-Cons
 - Bush's Legacy

- Development
 - MDGs
 - City Voices
 - Corruption
- Civil Society
- Globalisation
- Environment
 - Energy Crunch
 - Climate Change
 - Tierramérica
- Human Rights
- Health
 - HIV/AIDS
- Indigenous Peoples
- Economy & Trade
- Labour
- Population
 - Reproductive Rights
 - Migration&Refugees
- Arts & Entertainment
- Education
- ExPress Freedom
- Women in the News
- Columns
- In Focus

- Readers' Opinions
- Email News
-  [What is RSS?](#)

LANGUAGES

- ENGLISH
- ESPAÑOL
- FRANÇAIS
- ARABIC
- DEUTSCH
- ITALIANO
- JAPANESE
- NEDERLANDS
- PORTUGUÊS
- SUOMI
- SVENSKA
- SWAHILI
- TÜRKÇE

INDIA: 'Glacier Man' Vows to Build More Artificial Glaciers

By Keya Acharya

LADAKH, India, Nov 22 (IPS) - He is well known as India's 'glacier man', but for 74-year-old retired government civil engineer, Chewang Norphel, accolades have made little dent in his quiet determination to build more high-altitude water conservation systems, or 'artificial glaciers', to beat the lack of water from receding Himalayan glaciers.

Over 70 percent of water in Ladakh district, India's northernmost state of Jammu and Kashmir, is sourced in springtime from the melting snows of glaciers, and is the sole source of water for irrigation for its remote mountain communities.

But in recent years, climate change and rising temperatures have resulted in decreasing snowfall in the upper-reach 'accumulation' zones of these glaciers, leading to reduced waters in the springtime.

A survey of 20 villages and 211 individuals over 65 years of age by the French non-governmental Groupe Energies Renouvelables, Environnement et Solidarités (GERES), showed over 90 percent of the respondents saying that winters were now warmer.

Meteorological data from 1973 onwards analysed by GERES—which in English stands for Committee for the Environment and Sustainable Development— showed a rise of one degree centigrade in the winter months in Ladakh, coupled with a sharp decline in snowfall and an equally sharp increase in mean summer temperatures in July, August and September.

The changing temperatures have already begun impacting the region's biodiversity and its communities, says the international organisation, Worldwide Fund for Nature (WWF).

"The breeding of the bar-headed goose and the black-necked crane is not on schedule in recent years," says Nisa Khatoon, project officer of WWF at Leh. "And migration routes of communities on the Tsokar lake [who weave the famous Pashmina shawls] have become more frequented as these pastoral communities migrate due to degrading pastures."

In Leh, Ladakh's capital city, Norphel quietly refutes claims, the latest by India's Ministry of Environment and Forest, that there is insufficient scientific data to prove that India's glaciers are receding.

"I am the scientific data," quips Norphel. "I have seen, for instance, the size of the Khardung La glacier—a high mountain pass in the Ladakh region, with an elevation of 5,359 metres above sea level—since I was a child: it was solid ice then," he explains.

The Khardung La glacier is one example of Ladakh's melting glaciers, barely recognisable now as a glacier.

"Four to five decades ago, there were so many glaciers you could see from Leh," Norphel tells IPS, responding to the ministry's refutation of receding glaciers. "Now you can't even see small ones anymore."

Norphel, a retired rural development engineer for Kashmir state, says the water problems faced by Ladakh's impoverished villages bothered him as much as the "wasting" of water in winter, from taps that are left running to avoid pipes freezing and bursting.

"I noticed from my garden tap that the water would freeze where it flowed, so that's where I got the idea of designing artificial glaciers that would freeze extra water in winter, melting just in time for sowing crops in April and May," says this unassuming, quiet man.

In November, trickling glacial streams are diverted and made to flow down nearby slopes through channels and outlets with 1.5-inch diameter pipes installed every five feet.

Stone embankments built at regular intervals impede the flow of this water, making shallow pools down the mountain slope, which fill up gradually and freeze almost instantly in winter, forming a thick glacier-like sheet of ice over the slope that Norphel calls "artificial glacier."

So far, Norphel has helped build 10 artificial glaciers, all near villages whose communities have helped construct and maintain them. In Stakna village, some 35 kilometres from Leh, 60-year-old Tashi Tundup is happy with the 'Stakna glacier'.

Meetings are arranged in the village to discuss village history of water, its availability in their nearby stream during peak winter time and the location of shade along the stream's course, where pools can be constructed to help freeze the water faster in the absence of direct winter sunlight.

Since the water is equally distributed to all in the village, sustainability of water-harvesting structures is ensured, says Norphel.



Glacial melts are diverted and made to flow through channels to form artificial glaciers.

Credit:Keya Acharya/IPS

**RELATED IPS ARTICLES**

- ▶ ENVIRONMENT: 'Temperature Rise Guaranteed, Thanks to Brown Clouds'
- ▶ ENVIRONMENT-INDIA: Women Farmers Ready to Beat Climate Change
- ▶ CLIMATE CHANGE: Kyoto Protocol Is a Lifeline for Island Nations

RELATED TOPICS

- ▶ Asia-Pacific
- ▶ Environment
- ▶ Earth Alert: Confronting Climate Change



Obama: A New Era?



Financial Meltdown

MOST POPULAR

- ▶ ENVIRONMENT: Save Half the Planet, or Lose It All
- ▶ DEVELOPMENT: Farmers Not Invited to Food Summit?
- ▶ BIODIVERSITY: Plants Finally Get DNA Barcodes
- ▶ DEVELOPMENT: Hunger Summit's Failure Exposes Grim Reality
- ▶ SRI LANKA: Invasive Plants: Yet Another Environmental Menace
- ▶ SRI LANKA: Plans to Release Tamils 'Nothing But a Political Ploy'
- ▶ CORRUPTION: Afghanistan, Iraq Near Bottom of Transparency Index
- ▶ LATIN AMERICA: Community-Based Social Innovation Wins Prizes
- ▶ CLIMATE CHANGE: Women Central to Adaptation, Mitigation
- ▶ U.S.: Army Underreporting Suicides, Says GI Advocacy Group

Norphel also dispels scientists' criticism of his 'artificial glaciers' as not being glaciers. "What matters is that these artificial glaciers serve similar water conservation and harvesting techniques as glaciers," says Norphel.

Norphel hopes to build two more such glaciers at Stakna village, holding two million cubic feet of iced water for its 700 residents.

"We get water as early as April itself (instead of melting glacier water in June), and this has helped the wheat crop. Wheat production has gone up over the last five years because of the water from the artificial glacier, and I can now also grow potatoes and peas," says Tundup of Stakna.

Norphel lists several other benefits: groundwater and spring recharge, significant increase in cash-crop farming, fuel, livestock fodder and livelihood incomes, mitigation of climate change for humans and livestock and ecological benefits to soil conservation.

He says the benefits of simulated glaciers have been confirmed by village folk and responses gathered over the last ten years.

The artificial glacier system can be replicated, says Norphel, in similar geo- climatic zones in central Asian countries such as Kyrgyztan and Kazakhstan.

"The problem is, it is difficult to find labour for maintenance work in the severe winter," says Norphel. "And the remoteness of these high-altitude systems makes transportation of materials very expensive."

In 1987, the first artificial glacier built by Norphel cost 1,580 euros (2,347 U.S. dollars) in Phuktse Phu village in Ladakh district. The latest plan by Norphel and the Leh Nutrition Project, a Britain-based non-governmental organisation, to construct five more comes at a total cost of 47,216.50 U.S. dollars, which is still just a fourth of the cost of concrete cement constructions for water conservation reservoirs, despite Norphel's claims of high costs.

"We use mostly locally available stones and material," says Norphel. The Indian Army—which has a heavy presence in Ladakh district due to its close proximity to China and Pakistan—and India's scientific and technology department financed constructions of artificial glaciers in 2008 up to this year, but Norphel says he needs help from other sources too.

"I can do so much better if I have some more funds," he says.

(END/2009)

[Send your comments to the editor](#)

[SIGN UP](#)

 News Feeds
RSS/XML

 Make IPS
News your
homepage!

 Free Email
Newsletters

 IPS Mobile

 Text Only

PICTURES FOR THIS STORY

This story includes downloadable print-quality images -- Copyright IPS, to be used exclusively with this story.

▶ [Channeling glacial melts to form artificial glaciers](#) Credit: Keya Acharya/IPS

[READ IN IPSNEWS.NET >>](#)

ECONOMY, TRADE & FINANCE



▶ [ENERGY-TANZANIA:
Charcoal a Dirty Trade-Off](#)
[More >>](#)

REALITY CHECK - Missing the Millennium Development Goals?



▶ [PERU: Fighting Hunger
with Native Crops](#)
[More >>](#)

ENVIRONMENT



▶ [Q&A: 'Creating Artificial
Glaciers Is Simple, Easy
and Replicable'](#)
[More >>](#)

[Contact Us](#) | [About Us](#) | [Subscription](#) | [News in RSS](#) | [Email News](#) | [Mobile](#) | [Text Only](#)
Copyright © 2009 IPS-Inter Press Service. All rights reserved.